

**FIG. 1**

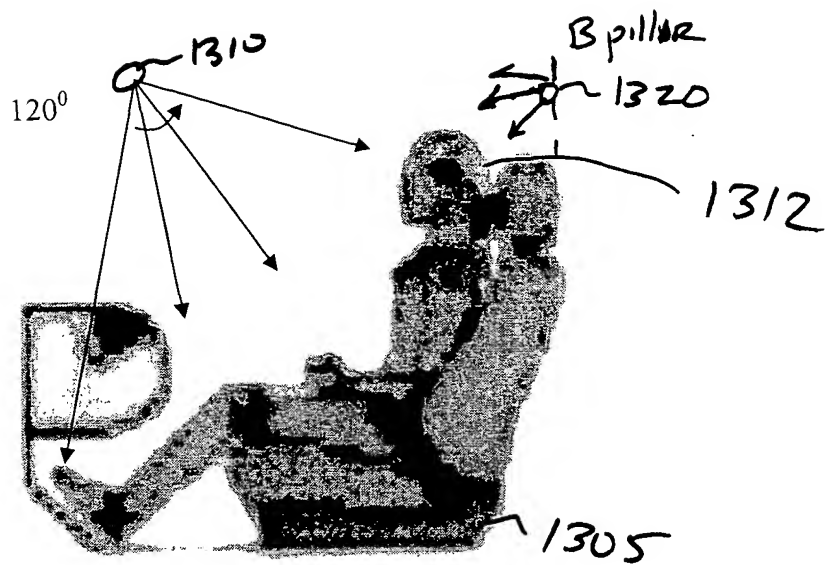


FIG. 13

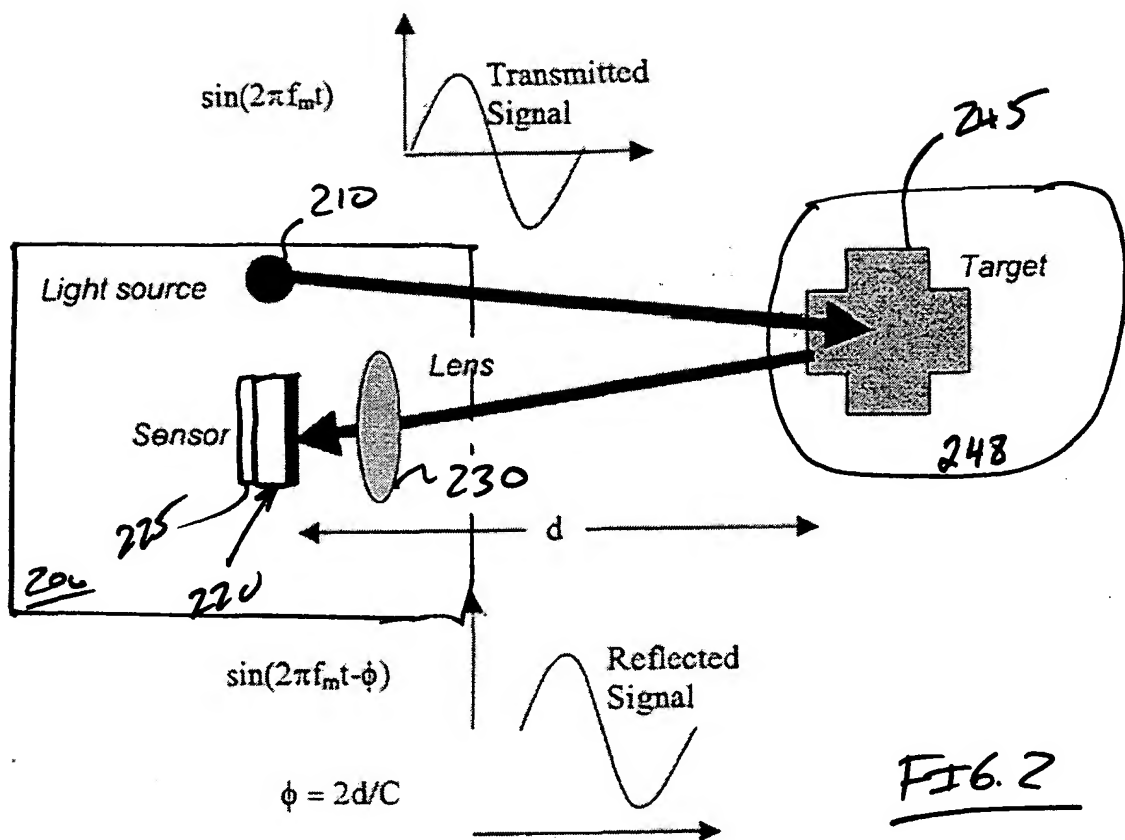


FIG. 2

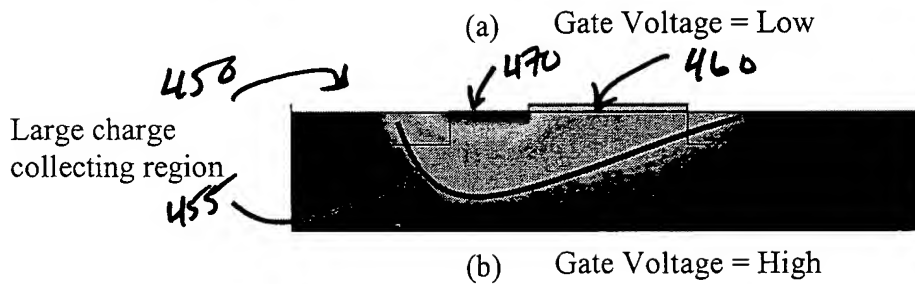
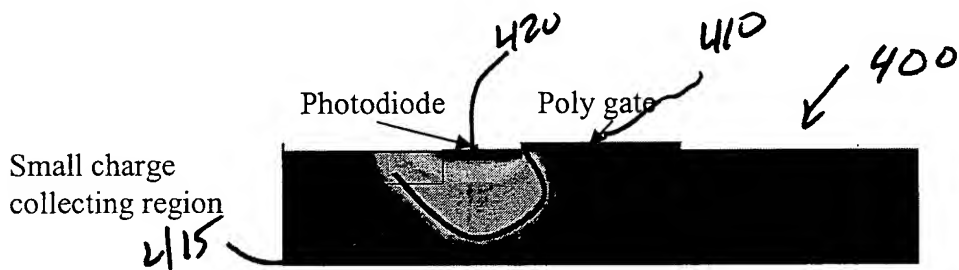
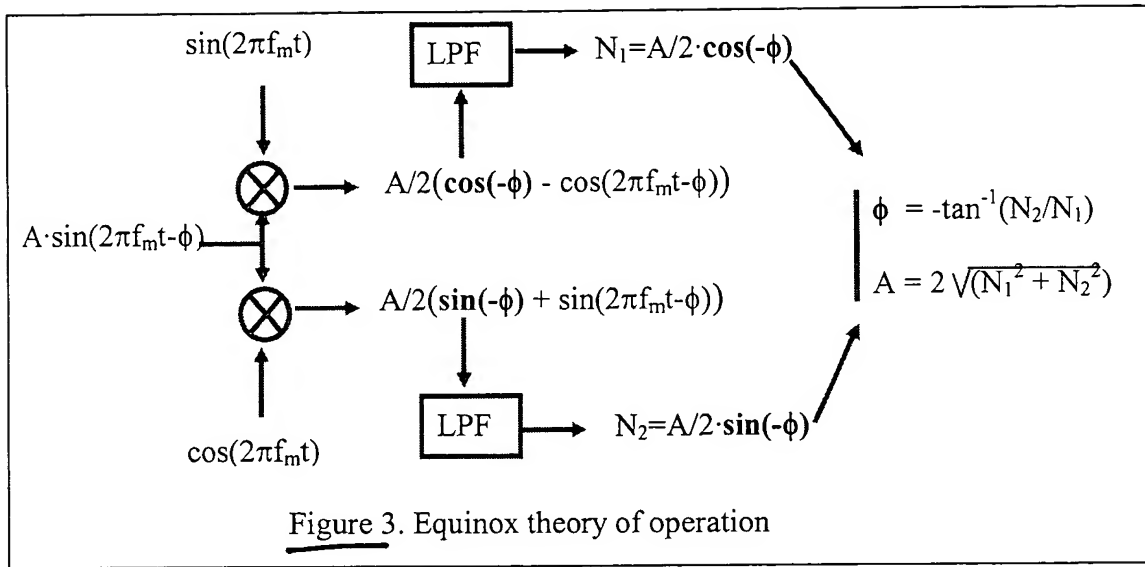


Figure 4. Photodiode quantum efficiency modulation structure where charge collection area is modulated as a function of gate voltage

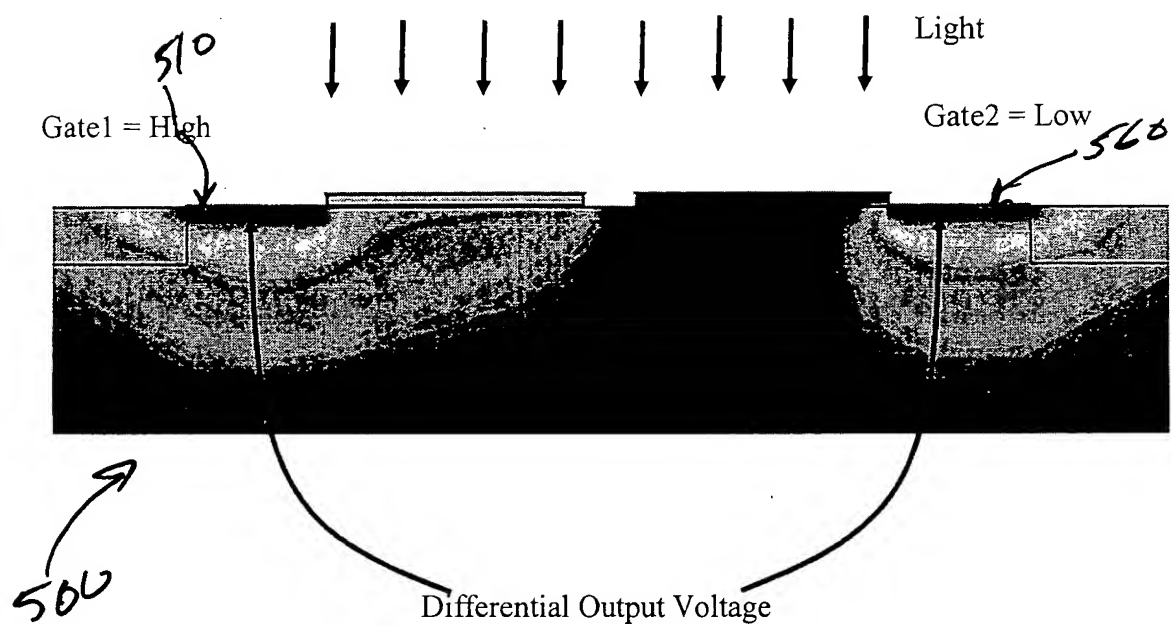


Figure 5. Differential QE modulation pixel structure.

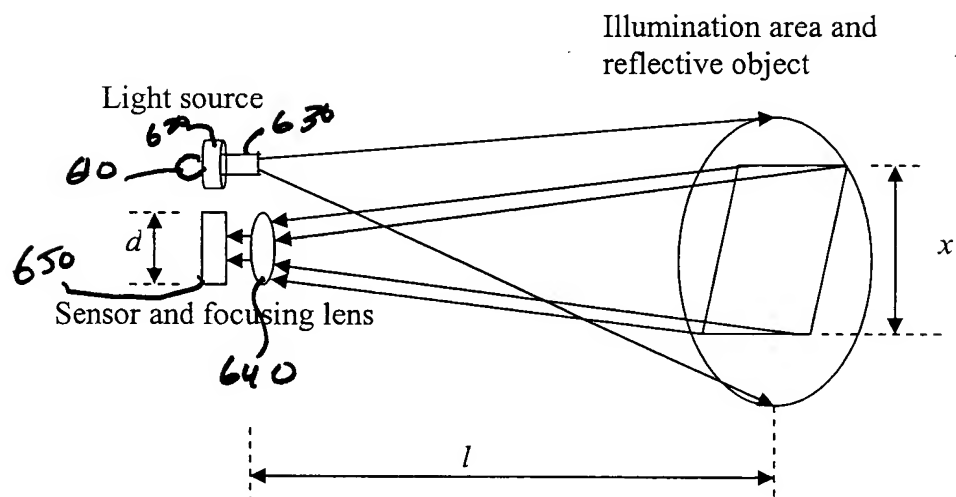


Figure 6. Optical system

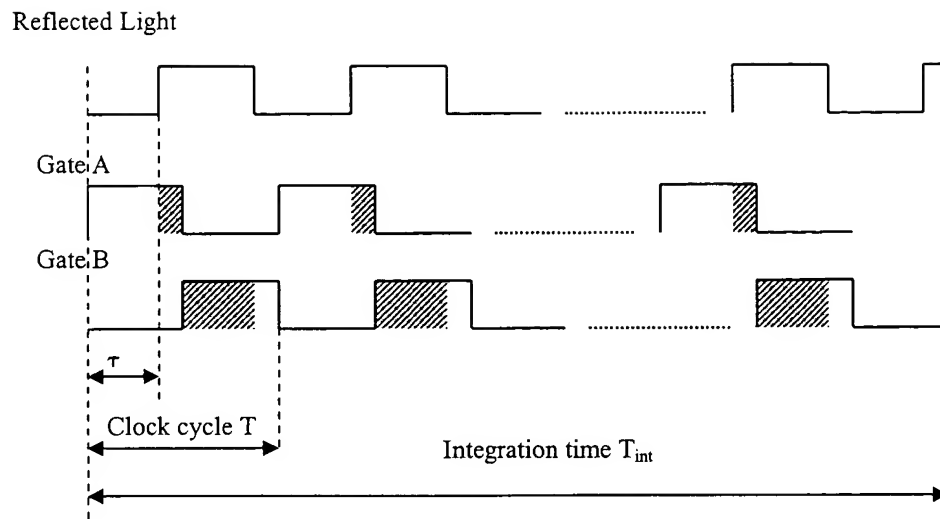


Figure 7. Charge collection model with differential QE modulated photodiodes; shaded area represents the active charge collection.

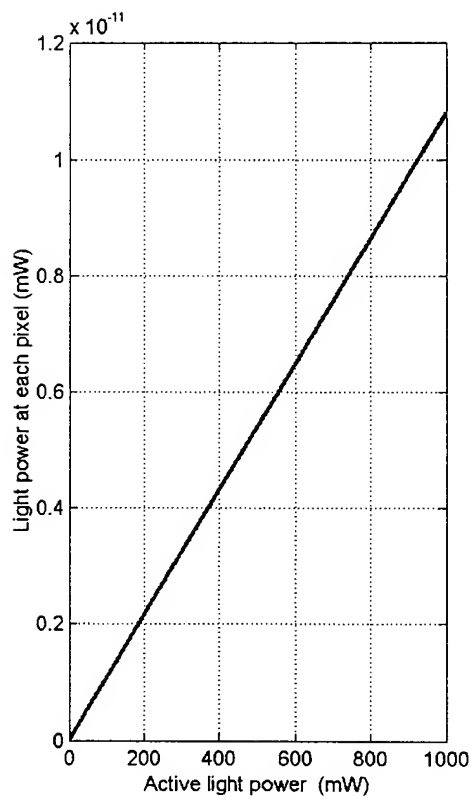


FIG 8A

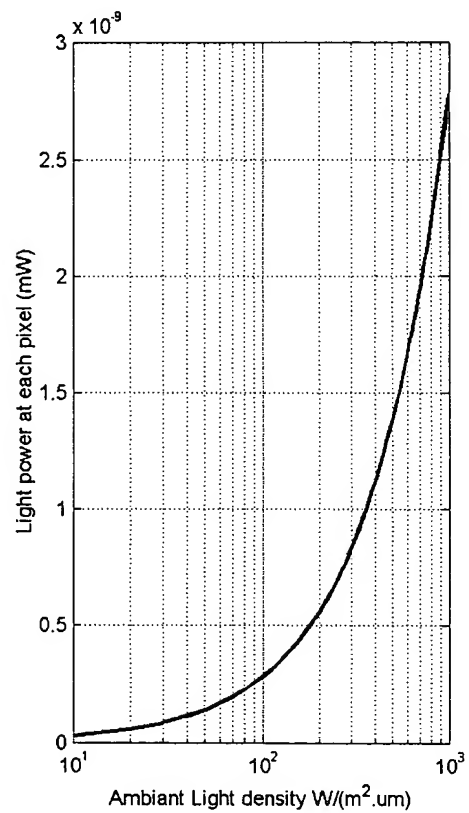


FIG. 8B

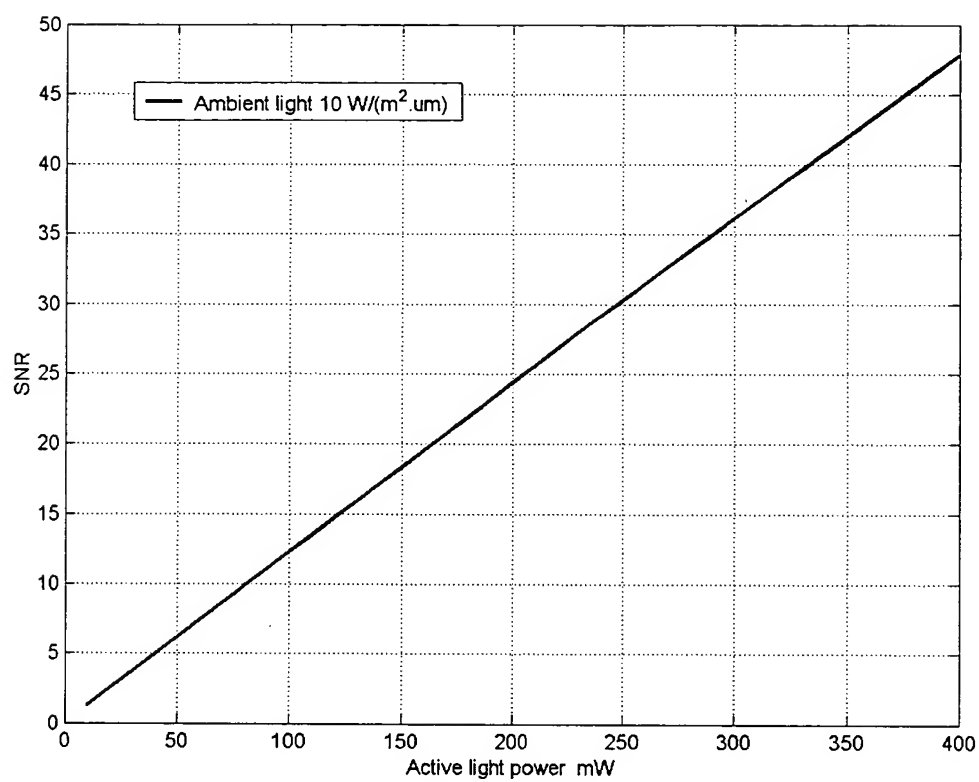


FIG. 9

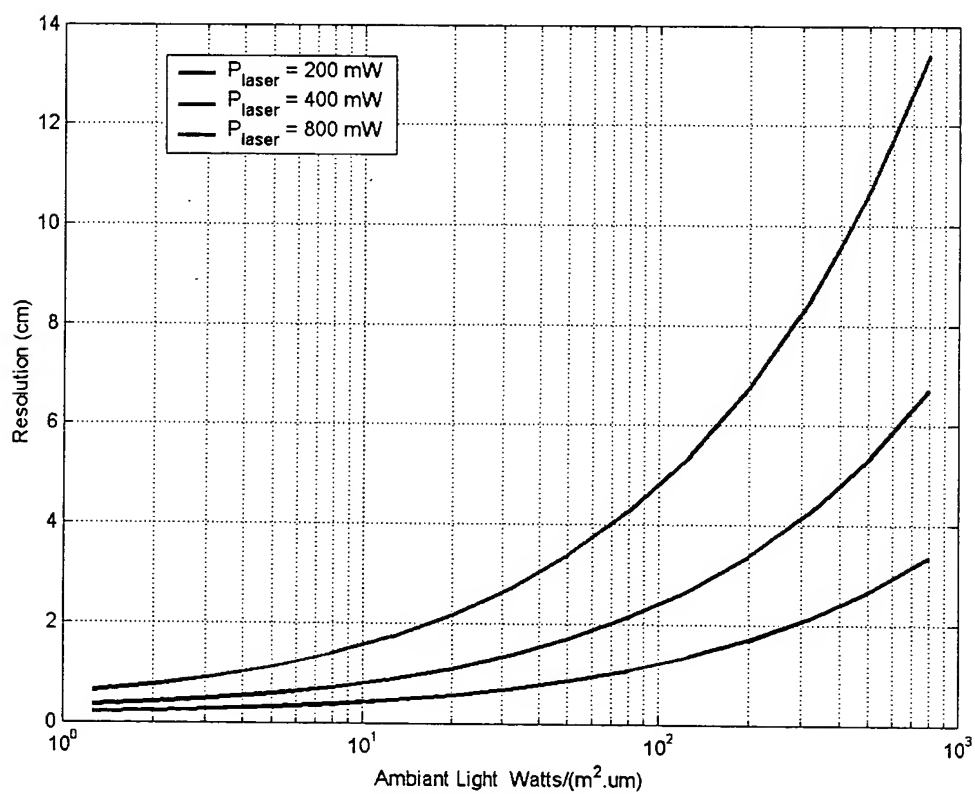


FIG. 10

Filter passband at maximum incidence angle

Filter passband at zero incidence angle

1110 1120

1140

1130 Light source wavelength

1215

Sensor

Light wave

Region of interest

1230

1220

1216

Inside of Car

Illumination beam

FIG 12

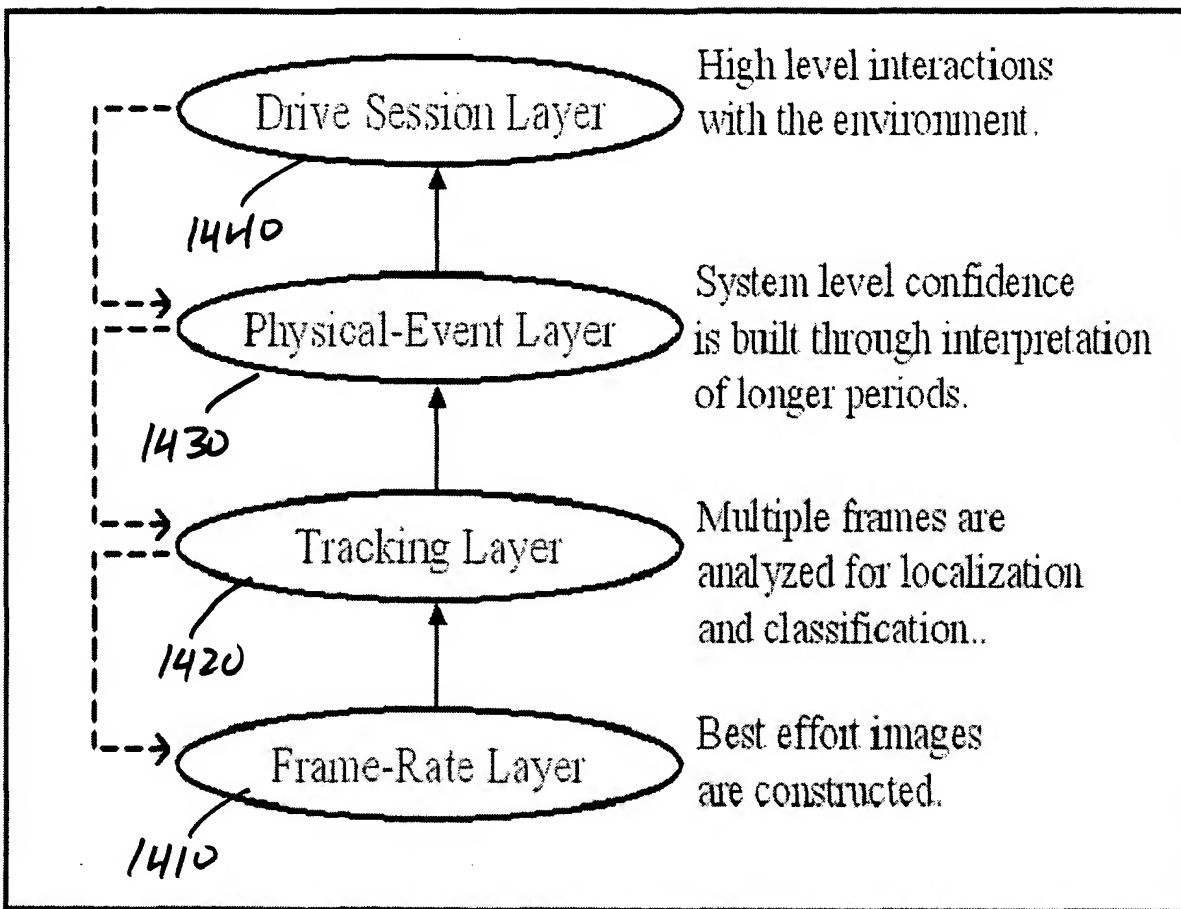


FIG. 14



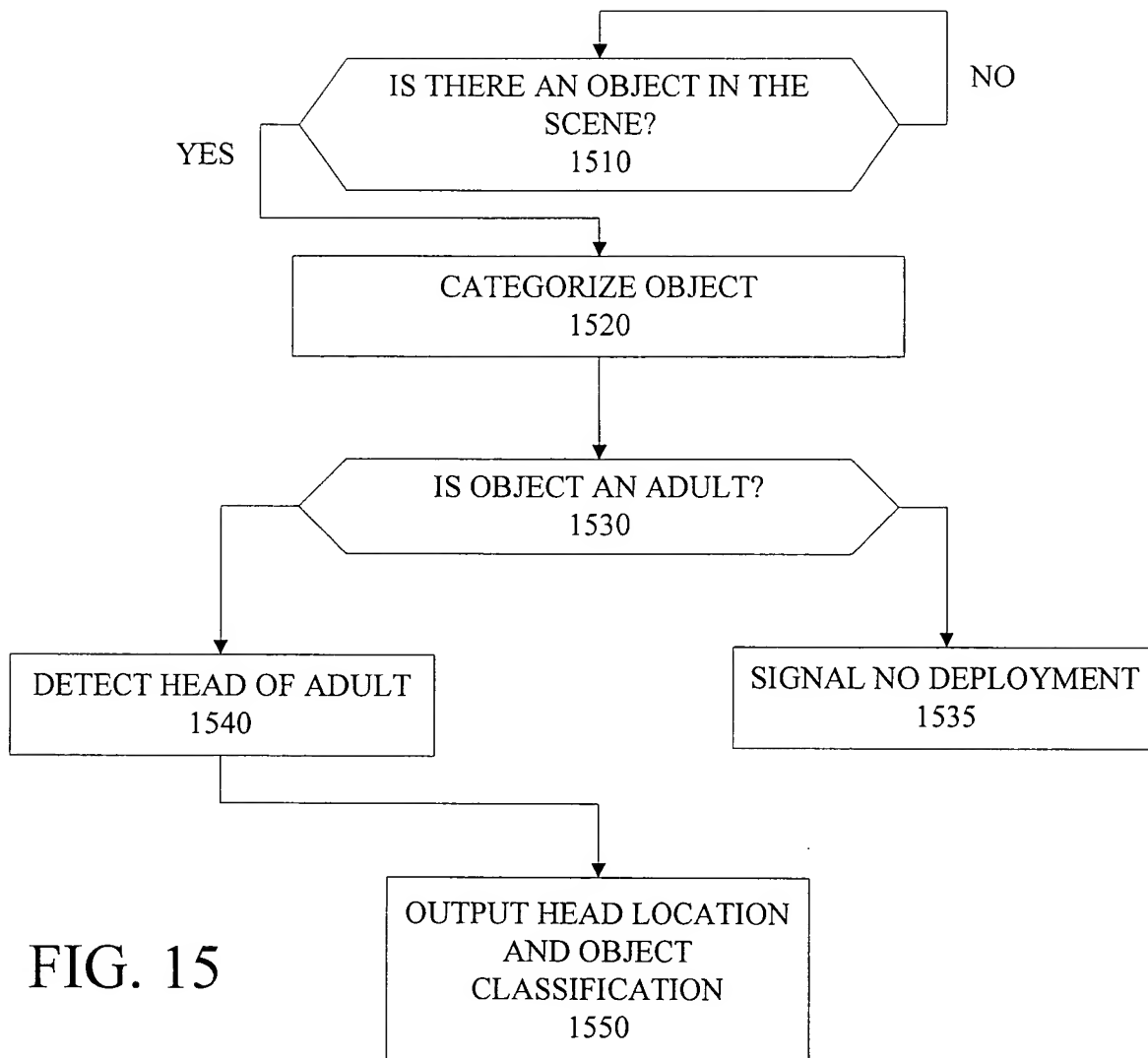
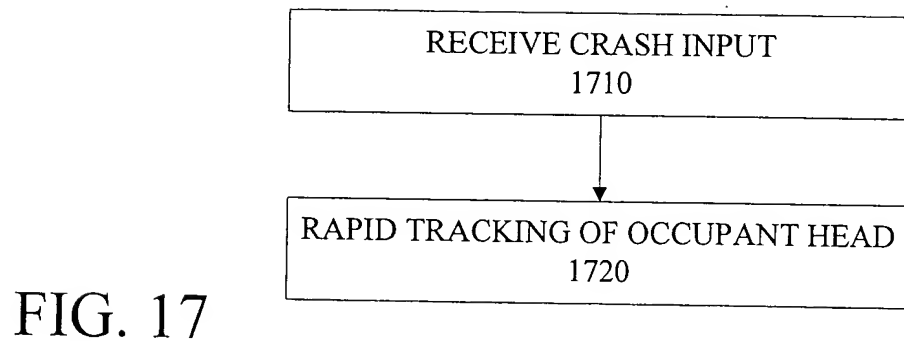
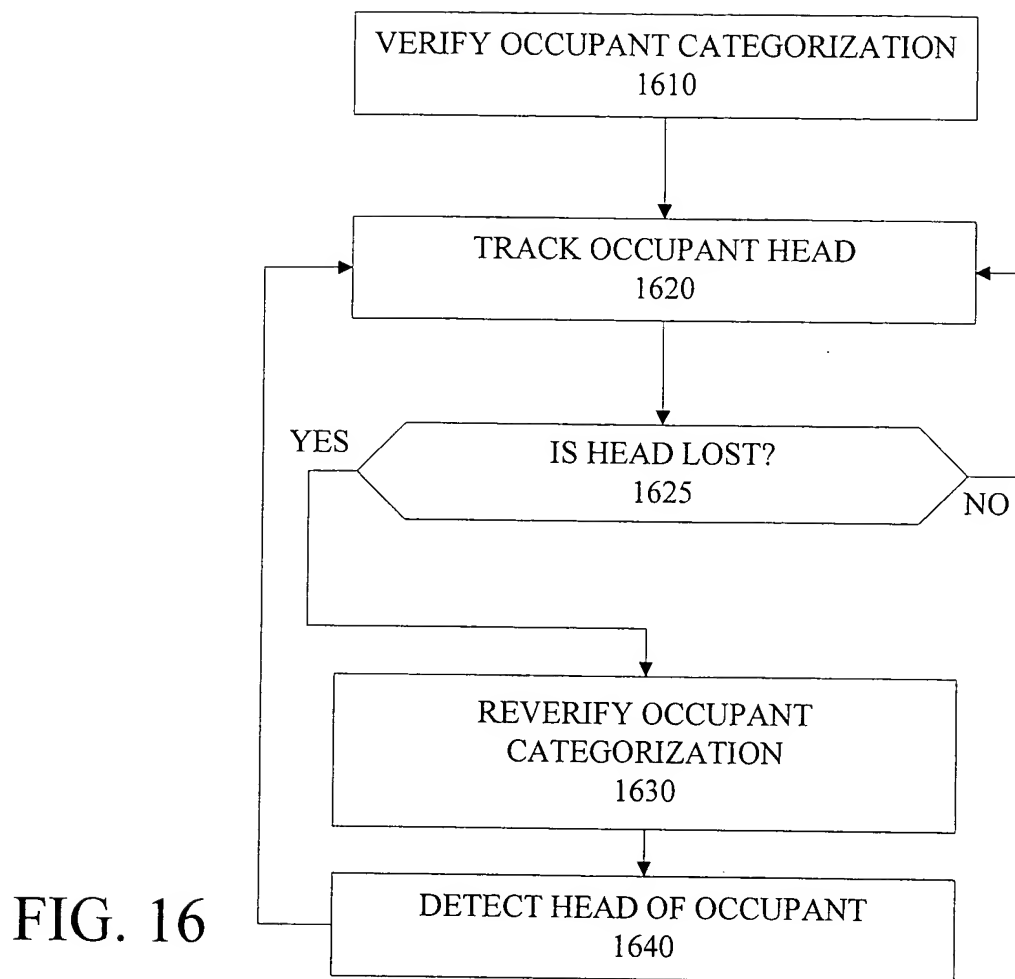


FIG. 15



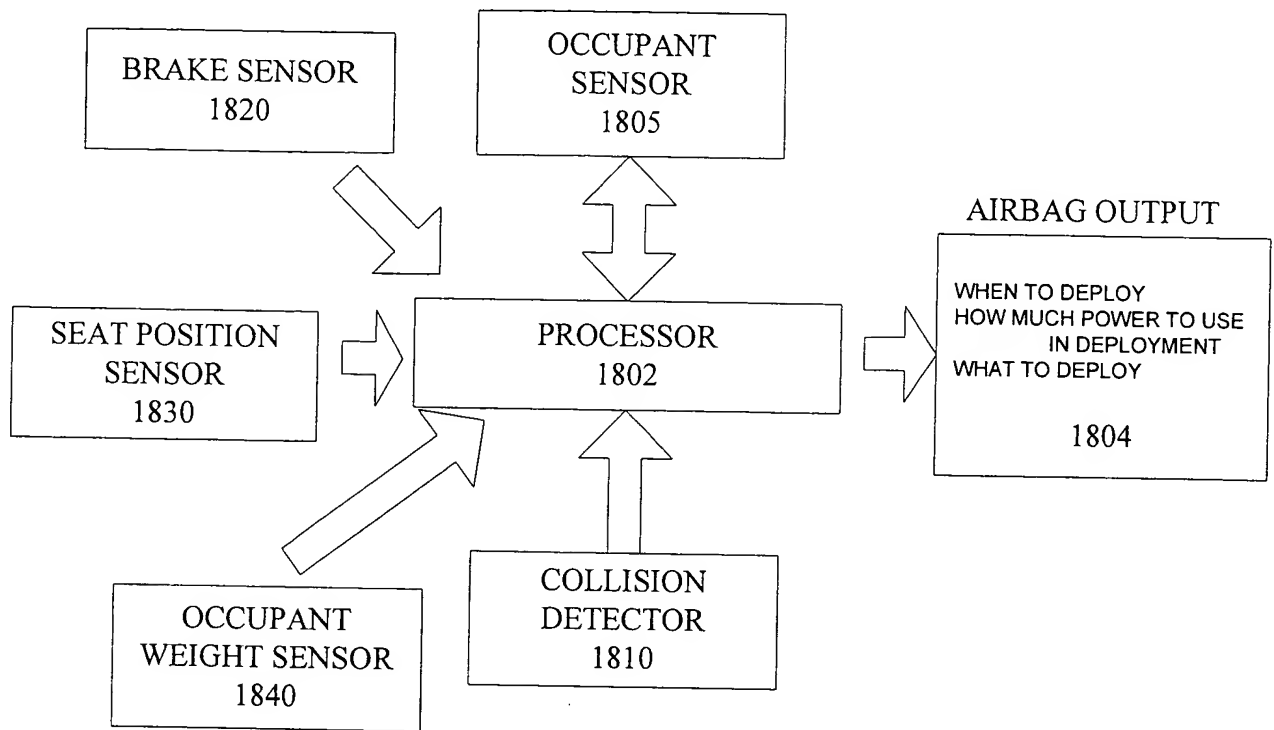


FIG. 18